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Status of the Claims

Claims 1-32 are pending in the Application. Claims 21-26 and 31 are allowed. Claims 1-7, 20, 27, 30 and 32 were rejected in the Office Action. Claims 8-19, 28 and 29 were objected to in the Office Action.

The Claims

35 USC 103

Claims 1-7, 20, 27, 30 and 32 were rejected under 35 USC 103(a) as being unpatentable over Gardner et al. (U.S. Patent No. 5,365, 229, hereinafter Gardner) in view of Gaikwad et al. (U.S. Patent No. 6,292,559, hereinafter Gaikwad). Applicants traverse the rejection.

The Examiner has failed to establish a *prima facie* case of obviousness. Therefore, the rejection should be withdrawn and these claims allowed.

It is well settled law that if the references cited by the Examiner fail to establish a *prima facie* case of obviousness, the rejection is improper and should be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988).

There are three basic criteria for the establishment of a *prima facie* case of obviousness based on the combination of references: (1) some suggestion or motivation to combine the reference teachings, (2) a reasonable expectation of success, and (3) the references must teach or suggest all the claim limitations. MPEP § 2143.

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art." MPEP § 2143 *quoting In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-1458 (Fed. Cir. 1998).

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In the present case, the nature of the problem solved does not suggest the combination of these references.

There is no suggestion in the references to combine their respective teachings. The Gardner reference does not teach or suggest anything about DMT ("Gardner et al. does not disclose the apparatus having logic operable to cause transmission of the bitstream as analog signals on a plurality of carrier frequencies and logic operable to receive the analog signals on the plurality of carrier frequencies." Office Action, page 3). Gaikwad does mention DSL but does *not* teach or suggest using DSL for well-logging. The Examiner makes the erroneous statement that "Gaikwad et al. also states that this transmission method [which the Examiner implies to mean DMT] can be used in well-logging telemetry (column 72, lines 8-20)." What Gaikwad actually states is "we have framed our work within the context of HDSL2, 'GDSL', and 'VDSL2' transmission formats. ... *this* technique [i.e., the technique taught by Gaikwad] could be potentially applied [in] ... well-logging telemetry cables" (emphasis added). This is also reflected in the Abstract: "The present invention may be used in digital subscriber-line (xDSL) communications *or* in a variety of *other* applications, such as well-logging" Gaikwad, Abstract, lines 18-22 (emphasis added). Thus, a more accurate paraphrasing of the teaching of Gaikwad would be that Gaikwad states that *their* data transmission invention can be used in DSL systems *or* in well-logging telemetry systems. However, Gaikwad has not suggested that DSL could be used in well-logging telemetry systems.

In the present application, the motivation to combine cannot be found in the knowledge of persons of ordinary skill in the art. The prior art DMT systems would not have been useful for well-logging. As described in the specification, "[a] modern oil well may be drilled to a depth of in excess of 30,000 feet." Specification, Page 2, lines 3-4. It is also known to persons skilled in the art that temperatures and pressure in oil-wells are extremely high. A person skilled in the art would be aware of both cable length limitations (DSL, as known to a person of ordinary skill in the art, would be limited to 18,000 feet – see <http://www.everythingsdsl.com/types/index.shtml>, attached hereto) and temperature limitations of known DSL equipment (see for example,

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<http://www.micronet.info/Products/ADSL/SP3302.asp>, attached hereto, where the equipment is limited to 70 degrees Celsius). Applicants are not aware of any prior art reference that discusses how to use DMT in the harsh conditions of oil and gas wells or over the cable lengths used in wireline well-logging of oil and gas wells. Thus, the knowledge of a person of ordinary skill in the art would not be a source for the motivation to combine DMT systems with prior art well-logging wireline telemetry systems.

The second criterion for a *prima facie* case of obviousness is that there is a reasonable expectation of success. Applicants invite the Examiner to consider the fact that prior art DSL systems have limited cable length and operating temperature restrictions. Thus, from the knowledge represented by the prior art, there would not be a reasonable expectation of success at combining DSL with prior art wireline telemetry systems.

For these reasons, the Examiner has not established a *prima facie* case of obviousness based on the combination of Gardner and Gaikwad. Accordingly, the rejection must be withdrawn and the claims allowed.

Allowable Subject Matter

The Examiner has indicated that Claims 8-19, 28 and 29 would be allowable if rewritten in independent for including all of the limitations of the base claim and any intervening claims. In light of the argument above in support of the Claims 1-7, 20, 27, 30 and 32, Applicants, for the time being, decline to rewrite Claims 8-19, 28 and 29 as suggested.

Applicants thank the Examiner for indicating that Claims 21-26, and 31 are allowable over prior art.